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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): P12889-US2

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on April 23, 2007

Signature Pamela S. Newton

Typed or printed name Pamela S. Newton

Application Number	Filed
10/025,526	December 18, 2001

First Named Inventor: Johan Nilsson, et al.

Art Unit	Examiner
2617	Bhattacharya, Sam

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☑ attorney or agent of record. Registration number 50,298
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 ______

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4-23-07
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Johan Nilsson, et al.	§	Group Art Unit:	2617
		§		
Serial No:	10/025,526	§	Examiner:	Bhattacharya, Sam
		§		
Filed:	December 18, 2001	§	Confirmation No.:	6219
		§		

For: METHOD AND APPARATUS FOR CLASSIFYING INTERFERENCE

CERTIFICATE OF MAILING OR TRANSMISSION

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Date: April 23, 2007

Pamela S. Newton

Via EFS-Web

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Issues regarding the Pre-Appeal Brief Request are as follows:

PENDING REJECTIONS

In this final Office Action, after the filing of an RCE, all of the pending claims 16, 19-21, 24, 26, 28-32, 34 and 36-40 were rejected as being unpatentable over Bergstrom (US 6,131,013) in view of Heinonen (US 6,363,127) and Aretz (US 6,684,079).

ARGUMENTS

Independent claim 16 of the present application provides as follows:

> 16. An apparatus for classifying interference in a mobile communications terminal comprising:
>
> an electronic circuit configured to receive a wireless communications signal carrying signal channels with transmitted information, the electronic circuit comprising signal processing units adapted to provide at least one of: a signal representing gain from an automatic gain control (AGC signal), a transmission power control command signal (TPC command signal), and a signal representing strength of the wireless communications signal; and
>
> an interference classifier adapted to classify a type of interference affecting communications quality by evaluating time-domain behavior of at least one of the AGC signal, the TPC command signal, and the signal representing the strength of the wireless communications signal; *and wherein the type of interference is classified in one of at least two predetermined classes of interference, wherein a first class of interference includes inter-cell interference, and a second class of interference includes intra-cell interference, and the interference classifier is adapted to identify and discriminate between inter-cell interference and intra-cell interference.* (emphasis added)

The novelty of the present invention lies in it ability to classify and discriminate between at least two predetermined classes of interference: inter-cell interference and intra-cell interference. Inter-cell interference originates from one or more neighboring base stations. <u>The fading of inter-cell interference is uncorrelated with the fading of the communication signal</u>. See page 2, lines 18-21 of the present application. Intra-cell interference originates from the same base station as the base station is communicating with the mobile communications terminal. Intra-cell interference is due to reception of non-orthogonal signals transmitted from the base station (e.g. the synchronization channel in WCDMA) or due to the multi-path propagation of the communication signal. See page 2, lines 25-31. <u>Intra-cell interference travels the same path as the communication signal and thus experiences the same fading</u>.

According to the Examiner, Bergstrom, col. 3, lines 39-51 and col. 6, line 56 to col. 7 line 35 teaches classifying interference as one of 2 types. However, Bergstrom

teaches an interference classifier, but does not distinguish <u>between intra-cell and inter-cell interference</u>. Col. 3, lines 39-51 provides:

> The receiver 304 includes an interference classifier 314, an interference suppressor 316, and a demodulation/decoding unit 318. The receiver 304 receives the signal from the channel 306 in a signal receptor (not shown), such as an antenna. The interference classifier 314 analyzes the signal received from the channel 306 and identifies and classifies interference components within the signal. The interference components can be from any of a number of different sources, such as nearby communications systems and/or hostile entities attempting to jam transmissions from the transmitter 312. The interference classifier 314 outputs a signal indicative of the interference classification of each of the identified interference components.

Col. 6, line 56 to col. 7 line 35 provides:

> Detector 58 receives the time domain correlated data from the inverse FFT 56 and detects significant correlation energy to produce detected data. In the preferred embodiment of the invention, detector 58 uses ensemble integration to perform the detection function. That is, detector 58 combines the magnitude squared of the inverse FFT 56 output. At zero or negative signal to noise ratio (SNR) conditions, symbols must be combined in an ensemble fashion and compared to a noise based threshold. The threshold is computed and updated dynamically during non-transmission periods in order to maintain an a priori bit error rate (BER) relative to ambient noise. Further processing may also be performed to adjust threshold levels during minimal background interference conditions.
>
> Following detection, the detected data is decoded and/or synthesized in decoder 60 to produce reconstructed data. Decoder 60 can perform adjustments to the multilevel code timing or phase in order to maximize the correlation peak of the signal. In this manner, the multi-symbol buffering nature of the detection process compliments blockwise, processor based frequency tuning offset correction methods, further improving correlation results. Decoder 60 produces in-phase and quadrature values from the detected data which are used to compute an instantaneous phase angle. The instantaneous phase angle is dealiased in the decoder 60 and decoding is performed via symbol based integration in order to produce the reconstructed data. The reconstructed data is then passed to the post processor 62 where operations such as adaptive post filtering enhancement or frequency de-emphasis may be performed, producing conditioned, reconstructed data. The conditioned reconstructed data is delivered to the DAC 64 where it is converted to an analog signal for output to output device 20.
>
> Performance estimator 66 receives the reconstructed data from the decoder 60 and analyzes the data to calculate one or more performance

> metrics. These performance metrics are then transferred back to the interference suppression processor 42 for use in fine tuning the interference suppression function. In a preferred embodiment, signal to noise ratio (SNR), bit error rate (BER), and spectral distortion (SD) are used as performance metrics, although other metrics may also be used.
>
> As described above, the interference suppression processor 42 is used to determine the type of interference that is present in the received signal and to perform interference suppression on the signal based on the types of interference identified.

Notably, Bergstrom is unable to distinguish between inter-cell and intra-cell interference. Heinonen provides AGC compensation for fading in general and does not classify intra-cell or inter-cell interference (see col. 1, lines 56-59 of Heinonen).

The Examiner further cites Aretz for being able to distinguish between intra-cell and inter-cell interference. In particular, the Examiner cites Fig. 1 and col. 6, lines 42-57 of Aretz for teaching an interference classifier that classifies types of interference as being either intra-cell and inter-cell. However, col. 6, lines 42-57 only refers to the invention of Aretz as minimizing <u>both</u> intra-cell and inter-cell interference.

> Furthermore, each base station can transmit, on the synchronization channel or a further channel information about CDMA codes already used in the respective cell. This information can be received by the other base stations, but also may be recieved by the mobile stations, and be utilized in connection with the channel estimation carried out using the midamble for the purpose <u>of reducing or eliminating the intracell and intercell interferences</u>, thereby establishing an improvement in the spectral efficiency. With regard to FIG. 2, it also shall be noted that BCCH denotes the broadcast control channel. After autosynchronization has been effected, i.e. on achieving the use of orthogonal CDMA codes of the participating stations, in a manner known per se, the synchronization with respect to the corresponding mobile part is performed and the connection set-up is effected.

Aretz does not teach discriminating between the two types and thus classifying a type of interference, and then performing operations based on the classification. Nor does Figure 1 of Aretz show a classifier.

Even presuming Aretz teaches this element, which it does not, it has been combined with two other references wherein the present patent application has been used as "a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit." Such

hindsight reconstruction is not legally permissible. Orthopedic Equip. Co. v. United States, 702 F.2d 1005, 1012, 217 USPQ 193, 199 (Fed. Cir. 1983).

CONCLUSION

In view of the foregoing remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Panel withdraw all rejections and issue a Notice of Allowance for all pending claims.

Respectfully submitted,

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